

# Summary History of Asian Textile Materials, and Their Patterning Techniques (*Batik*, *Bandhana* and *Ikat*) Based on Literary and Pictorial Evidence and Actual Remains

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## A. As Applied to Cotton

The earliest material employed for weaving in India and one of the most commonly used was cotton. Excavation at Mohenjo-Daro have shown that cotton was woven at least as early as the third millennium B.C. Minute fragments of madder-dyed cotton have been impregnated with metal from the walls of a silver vase found at the site.<sup>1</sup> Fragments of cotton fabric presumably of Indian origin were recovered by Sir Aurel Stein in 1921 from Lou-lan in Eastern Turkestan dating from the later Han dynasty.<sup>2</sup> At two sites in Mesopotamia, Dura-Europus (deserted A.D. 256) and Palmyra (sacked A.D. 272), were found some imported cottons, also most likely Indian, among the wrappings of the dead.<sup>3</sup>

The oldest historical record of the weaving of cotton cloth appears in the *Rigveda* of about the 15th Century B.C. but the first mention of brightly-coloured Indian textiles in the West seems to have been made by the Greek physician Ctesias, writing in the early 5th century B.C. He mentions their popularity among the Persians, an indication that Indian fabrics were exported as early as that period.<sup>4</sup> Herodotus (c. 450 B.C.) describes how the women of India prepared the raw cotton for weaving on their crude hand-looms. Staius Caecilius, in his *Pausimachus* (c. 200 B.C.) uses the word *carbasina* (Sanskrit *karpasa*) for cotton. By the 1st century A.D, Indian muslins were an important export to Rome under such names as *nebula* (cloudlike), *gangetika* (like the waters of the Ganges) and

*venti* (winds). Silk was also an important export to Rome but the raw material was imported from China in some cases *via* India, and both as yarn and finished cloth.<sup>5</sup> It is possible that some of this silk was patterned and dyed in India before re-export to Rome.

The first visual record of Indian textiles patterned by identifiable techniques is seen in the murals at Ajanta, particularly those attributed to the late 5th century A.D. All three techniques under examination, *batik*, *bandhana* and *ikat*, are represented. The most distinctive examples are to be found in Cave I, especially in the scenes illustrating what is thought to be the *Mahajanaka jataka*. In the palace scene, a *bandhana* of yellow and black adorns the sleeves of the dancer whilst the waist cloths of a flute-player, the *raja*, and the foremost attendant woman are of a simple striped *ikat* pattern.<sup>6</sup> In the scene of the *raja* conferring with his wife, the *raja*, his wife and a seated woman attendant wear *ikat* waist-cloths, another seated attendant has on a *bandhana* bodice, whilst various others wear *bandhana* headbands.<sup>7</sup> In the following scene, depicting the *raja* setting out on horseback, one of the men in the entourage wears a *batik* shirt decorated with diagonal rows of birds, probably representing the sacred goose, *hamsa*.<sup>8</sup> Three *bandhana* shirts and two *ikat* waist cloths, including that of the king, are also depicted in the same scene. In the scene illustrating the *Hamsa jataka*, or the story of the Golden Goose, in Cave XVII are four patterned cloth-hangings in the background behind the *raja*.<sup>9</sup> They are, apparently, from left to right respectively: a *bandhana*, a *batik* of rosettes of 8 dots reserved white on a green ground, a *himroo* with circular floral scrolls in red and, lastly, a second *bandhana*.

Early appearances of *batik* and *bandhana* outside India are found in wall paintings, particularly in Central Asia. In the scene of Buddha entering *nirvana* in Cave no. 428 at Tun-huang, Kansu Province, dating from early 6th century A.D. the coverlet is patterned with rosettes of 9 dots reserved white by the *batik* technique, whilst rosettes of 7 dots, similiary reserved, decorate the pillow.<sup>10</sup> In an unidentified religious scene from Shrine III at Miran, of about 500 A.D., a *bandhana* of red on blue covers the seat of a sacred personage.<sup>11</sup> In the scene illustrating the dance of Queen Chandraprabha from the Treasure Cave at Qizil, dating from about 500 A.D., two attendant women wear *bandhana* waist-cloths and a

third a *bandhana* tunic.<sup>12</sup> In the wall painting depicting Hariti with 5 children from Shrine XII at Farhad-Beg-Yailaki of the mid-6th century, Hariti wears a *batik* tunic of rosettes of dots, reserved white on blue, and a *bandhana* sash of white on red.<sup>13</sup> The trimmings of the tunics worn by several donors depicted in a wall painting at Qizil of about 600–650 A.D. are of *bandhana* cloth.<sup>14</sup> The dragon frieze at Qizil, dating from about 700 A.D., appears to have a *bandhana* background.

The oldest surviving Indian patterned cottons are rags recovered from the sites of old urban rubbish dumps in Egypt, especially at Fostat (Misr al Qadimah). They are mainly printed cloths, and date from the 12th century onward, when Indian dyed cottons were exported in bulk to Egypt, the exceptionally dry climate accounting for their preservation. Most of them have been identified as having been exported from Gujarat between the 14th and 16th centuries.<sup>15</sup> No fabric earlier than the late 16th century seems to have survived in India itself. Cloths belonging to the Byzantine period have survived in Egypt, but none of these is cotton. Pfister attributes this to the fact that the linen industry in Egypt at that time was sufficiently advanced to supply the country's needs, so that there was little necessity for imported cottons. This situation changed only gradually after the Moslem conquest of Egypt in 641 when cotton began to be grown and spun by the Egyptians themselves. Cotton cloth of foreign weave made its appearance especially from the 10th century onward, though evidence of printed cotton in Egypt cannot be established before the end of the Fatimids (969–1171 A.D.). Pfister, examining the printed fabrics of the 12th to the 16th century found at Fostat, attributed to India all the cottons patterned by the resist-dyeing technique using permanent dyes; those (cottons as well as linens) patterned by direct block-printing of pigments he attributed to Egypt of the Mamluk period (1252–1517). He was of the opinion that even at the end of the 16th century the technique of resist-dyeing had not yet penetrated the Middle East.<sup>16</sup>

## **B. As Applied to Silk**

The wild silkworm was found originally over the whole of central and southern Asia. The cultivation of the silkworm and the preparation

of its silk is a Chinese discovery so ancient that its early development is to be found only in legend. Chinese myths tell how the legendary Empress Hsi-ling Shih, wife of the Yellow Emperor Huang Ti, in the middle of the 3rd millennium B.C. taught the Chinese how to rear the worms and “to treat the cocoon and the silk in order to give the people clothes which could protect them from head injury and cold.”<sup>17</sup> She herself had learned the art by observing how the worm spun the thread round itself, and is credited also with the invention of the reel and the loom.

A single cocoon of an unidentified silkworm was found at the Middle Yang-shao site of Hsi-yin-t’sun in Shansi (c. 2200–1700 B.C.), an indication that silk was probably in use at that time, though whether reeled or spun is impossible to say from this evidence, for the cocoon had been cut, either by man or by the escaping moth.<sup>18</sup>

The earliest evidence of reeled silk appears in Shang times. A few fragments owe their chance survival to impregnation with the patinated surface of bronze objects which had been wrapped with silk and buried with the dead. Dr Sylwan has examined three fragments of silk (two tabby, one twill) adhering to a bronze axe and a vessel of the *chih* class, both of which were found at An-yang and can be assigned to the First Phase, (1500–950 B.C.) on stylistic grounds.<sup>19</sup>

Abundant silk fabrics have survived from Han times (205 B.C.–A.D. 220) when the ancient silk routes were first established, and silk began to appear for the first time in the Near East. Han Chinese silks have been found at various sites on or near the direct trade-route to Rome, at Tun-huang in China; Lou-lan, Ying p’an and Niya, Edzengol and Lop-nor districts in Chinese Turkestan; Begram in Afghanistan; Dura-Duropos and Halebie-Zenobia in Mesopotamia; and Palmyra in Syria.<sup>20</sup> Important finds were also made at Noin-Ula near Lake Baikal in Northern Mongolia, at Lo-lang in Korea, at Pasyryk in Siberia and at Panticapaeum on the Black Sea.

According to the ancient Sanskrit law-books, and classical naturalists and historians such as Aristotle, Virgil and Pliny, silk was produced in various parts of Western Asia before the Christian era, especially in India. It is possible that India was producing cloth woven from the spun silk of wild silkworms at this time, for the

first silk used for weaving must have been from some kind of wild silkworm. There is no evidence at all that reeled silk was being manufactured anywhere in the world outside China at this time.<sup>21</sup>

Silks dating from the Sui (A.D. 580–618) and Tang (A.D. 618–906) dynasties have also been recovered from sites on or near the old silk route, at Astana. Kharakhoto, Toyuk and Turfan and in the Lop-nor district. Textiles, apparently mostly silk, belonging to the 7th and 8th centuries are also preserved in the Imperial Shosoin at Nara, Japan, founded in A.D. 756 by Empress Komyo, widow of the Nara Emperor Shomu, as a repository of his personal treasures.

### C. Historical Evidence for *Batik* and *Bandhana* Techniques

Examples of *batik* and *bandhana* can be found among these oldest surviving silks. Four fragments of *batik* on silk, presumably dating from the late Han dynasty, but similar in all respects to others from Astana (see below), have been unearthed by Sir Aurel Stein at Lou-lan. All four are patterned in resists of white dots on crimson or blue ground. In two, the dots are arranged in a diagonal trellis, five a side, each lozenge thus formed containing a rosette with eight dots.<sup>22</sup> In two others, the pattern consists of rosettes of seven small dots interspersed with large single dots.<sup>23</sup>

From the tombs at Astana, dating from the 6th to 8th centuries, Stein uncovered silks among which were several fragments containing *batik* patterns made up of resists of white dots on blue or red, very much like those found at Lou-lan.<sup>24</sup>

The outpost of Lou-lan was abandoned in the early 4th century A.D. when the River Tarim became diverted away from the area, thus providing a *terminus ad quem* to which all objects found on the site can be dated. The finds at Astana are dated to a period from the 6th to the early 8th century A.D. by funerary inscriptions found in several of the tombs. However, the similarity in the patterns of the *batiks* found at Lou-lan and at Astana presupposes that they are contemporaneous, so that the total possible period covered may have been from the late 3rd century to the 7th century A.D.

Also from Astana is a silk *batik* of birds and floral scrolls, printed in white on a blue ground, certain parts of the white reserve being

subsequently painted over in yellow.<sup>25</sup> There are also some fragments of silk *bandhana*, two of which are illustrated by Stein, one having yellow spots on a crimson ground, the other white on blue.<sup>26</sup>

Another resist technique discovered at Astana is that known as *lehria* in India and *tritik* in Indonesia.<sup>27</sup> This is related to the *bandhana* technique and involves running lengths of thread through the cloth with a needle and then gathering up the cloth into little pleats, or folding the cloth into small pleats and tying them with string before it is dyed.

Only *batiks* have been recovered from Khara-khoto, a site also dating from the early Tang dynasty. Besides silks with simple patterns consisting of white or buff dots in resist, as already reviewed in silks from Lou-lan and Astana, there are those with more sophisticated patterns in resist such as petalled rosettes with midribs,<sup>28</sup> quatrefoil or cloverleaf<sup>29</sup> and symbols including the swastika.<sup>30</sup> More complicated floral patterns in resist are also found on silks from Kao-ch'ang in the Turfan region.<sup>31</sup>

Among the silks recovered by Folke Bergman from the early T'ang (600–750 A.D.) site of the “Small River”, tributary of the Qum-darya in the western region of the Lop Desert, is a taffeta *bandhana* with yellow spots on a red ground,<sup>32</sup> similar to that from Astana already mentioned. The cloths preserved in the Shosoin at Nara include *batik* and *bandhanas*. A screen panel with a *batik* pattern of rams and trees was effected by printing the floral pattern with wax on the white silk, dyeing the cloth yellow and then reserving the tree trunks and rams yellow with wax before dyeing the cloth brown, and finally removing the wax.<sup>33</sup> The floral parts of the design were later painted apparently in green pigment.

The *batiks* in the Shosoin are mostly in one or two colours, but there are a few with three-colour dyeing, ie dyeing three times, each in a different colour. An example of three-colour dyeing is a block-printed *batik* patterned with waves, fish and birds.<sup>34</sup> The birds are red, the fish reddish-yellow, the waves and seaweeds light green, and the ground reddish-purple.

The *bandhanas* in the Shosoin are chiefly patterned with small squared mostly in a scattered arrangement. One example, however, is patterned with a rosette motif of six squared rings surrounding a central larger one.<sup>35</sup> Another has the rings arranged in oblique

stripes.<sup>36</sup> Some are patterned in broad diagonal stripes or lattices, effected by rolling up the cloth and tying the rolled cloth at various intervals along its length before dyeing it, like *lehriyas*.<sup>37</sup>

Among the reserve-dyed cottons, found at Fostat and dating from the 12th century onward, are a few examples of *bandhana*. Pfister is of the opinion that the majority of these are imitation *bandhana* made by the *batik* technique because the cloths also bear obvious *batik* patterns combined with the *bandhana*.<sup>38</sup> Although it is perhaps not theoretically impossible for a cloth to be patterned in two stages of resist, i.e. *batik* followed by *bandhana*, before it is dyed, the three examples illustrated by Pfister on plates VII and VIII do not have the appearance of true *bandhanas*; a few of the small rings of reserved colour typical of the *bandhana* are incomplete, as though parts of the resist had broken off, and the central spots of dye colour within some of the rings are obliterated as though the resist had overflowed.

The *batiks* which form the greater part of the patterned cotton fabrics found at Fostat already show a perfection of technique and excellence of design. These, together with the *bandhanas*, can without much doubt be attributed to India on stylistic grounds.<sup>39</sup>

The provenance of the silk *batiks* and *bandhanas* found in Central Asia, belonging to the Han and T'ang dynasties, is not so certain. The sole decorative motif of the *batiks* dating from the 3rd to the 7th centuries A.D. found at Lou-lan Astana, is the circle, a basic element in design which must have been in widespread use long before the period under discussion. The round dots are arranged in rings of 6 or 7 around a central, sometimes larger, spot, so as to form a rosette. This simple and fundamental arrangement of the units of a single element is even today reproduced on Lambadi clay-resists of rough cotton which are worn by the peasant women in Andhra Pradesh, on South Indian mass-produced mill-cloths and even on the rubber flaps fitted behind the mudguards of bicycles in South India.<sup>40</sup>

*Bandhanas* similar to those found on the early T'ang silks from Central Asia are depicted on the murals at Ajanta dating from the last quarter of the 5th century. They are still made in Andhra Pradesh, Gujarat and Rajasthan, but no trace of the technique has been found in China besides the few examples mentioned above.

It seems probable that during the early years of the silk trade Chinese silk, whether in the form of yarn or finished cloth, was imported into India where it was woven and/or patterned, and then re-exported to China. However, independent invention in China of the motif under discussion as a *batik* is not completely inconceivable, in view (a) of the universality of the rosette pattern, and (b) of the simplicity of a *batik* technique employing a mud- or starch-resist. Simple, two-colour *batiks* are still produced in China today.

#### D. Historical Evidence for the *Ik*at Techniques

The origin of the *ikat* technique does not seem to extend as far back into history as those of the *batik* and the *bandhana*. Close examination of the murals at Ajanta dating from the late 5th century A.D., in particular those in Cave I illustrating the *Mahajanaka jataka*, reveals several waist-cloths, worn by both men and women, which seem to have been patterned by the *ikat* technique. In the scene of the *raja* conferring with his wife, the *raja's* wife and the female attendant on his right are wearing waist-clothes containing broad white bands alternating with coloured bands.<sup>41</sup> Within the coloured bands are horizontal, V-shaped flecks in white, of the type called *tumpals*, which appear to have been reserved in the *ikat* technique. This, however, is not wholly clear from the illustrations, and the assumption that they depict *ikat* may be wrong. *Ik*at cloths containing bands of *tumpals* are still made, not only in India but also in various other parts of Asia especially the south-east.

Although fabrics patterned by the *batik* and the *bandhana* techniques (which are also illustrated at Ajanta) have been recovered from excavations in Central Asia and in Egypt, no example of *ikat* was found among those cloths.

The earliest textual reference to the tie-and-dye technique (known as *bandh*, derived from the Sanskrit root *bandh*, "to tie") seems to be that made in Bana's life of Harsha (A.D. 606–648) composed in the early 7th century A.D., where the court poet is describing the manufacture of textiles for the marriage of Rajyasri, sister of Harsha.<sup>42</sup> However it is not clear whether the reference is to the technique of tie-dyeing of the cloth, known here as

*bandhana*, or to that in which the yarn is dyed before weaving.<sup>43</sup> The *Manasollasa* attributed to king Somesvara of the Later Chalukyas (A.D. 1126–1138), a treatise on the pursuits of kings composed about 1131 A.D., mentions *tantubandha suraktani*, “well-coloured by tying them with fibres”, but this also does not clearly describe the *ikat* technique.<sup>44</sup>

Mehta mentions a tradition preserved in Patan according to which “the weavers of *patolas* were brought from the Marwar region of Rajasthan by Chahada during the reign of Kumarapala in the 12th century A.D.”, and assumes that the *ikat* technique might have been known from the 10th century A.D. in the Rajasthan area.<sup>45</sup> One of the earliest references to patola appears in the *Yasastilakachampu* of Somadeva composed in A.D. 959 in the reign of Rashtrakuta Krishna III (939–966) where it is described as a silk stuff (*pattakula vastrani*). No mention is made of its technique and it is not known whether an *ikat* is meant at that time.<sup>46</sup>

More specific references to *ikat* and *patola* fabrics are found from the late 13th century onwards. Moti Chandra, in his article entitled “Costumes and textiles in the Sultanate Period”<sup>47</sup> has condensed and translated relevant excerpts from certain important sources dating from the 13th to the 16th centuries. He mentions that according to Ziya-ud-din Barani, ‘Ala-ud-din (1297–1313) of Delhi received from Deogarh “patolah”, among other gifts.<sup>48</sup> This is no doubt the *patola* of later times. Jyotirisvara Thakkura, author of *Varnaratnakara* of the early 14th century, mentions two varieties of *bandh* or tie-dyed fabric, *suryabandha* and *gajabandha*, ie the solar and elephant patterns produced by the *bandha* technique. Two other tie-dye fabrics also mentioned in *Varnaratnakara*, *vichitra* and *vichitragada*, are reminiscent of *vichitrapuri*, the tie-dye *sari* of Orissa.<sup>49</sup> In 1342, the Arabian traveller Ibn Batutah brought the Emperor of China gifts from the Sultan of India.<sup>50</sup> These included one hundred silk *djozz* which according to Alfred Buhler, meant “cloths whose raw material (presumably the yarn) was dyed in four or five different colours.”<sup>51</sup> A poem of about 1373 mentions a young woman wearing a silk *sari*, *pahirani chira patuliya*.<sup>52</sup> In both Gujarat and Rajasthan the tie-dye “patoliya” was often worn by women in the 14th century.<sup>53</sup> *Patuliya*, *patoliya*, *patolau*, *patauliya* are old Gujarati variants of the word *patola*, which according to one view is derived

from the Canarese *pattuda* or *pattadukula*.<sup>54</sup> The *Viyidha-varnaka*, which is datable to the 14th century mentions black, blue and white *patolas*. It is not certain whether in those days the word *patola* designated the double-*ikat* technique exclusively; in the *Neminatha Phagu* of Rajasekhara (c. 1346) Rajimati is said to have worn a plain white *patauliya*.<sup>55</sup> The *Jimanavara-paridhanavidhi*, one of several stock-lists of stuffs compiled by old Gujarati writers during the late 14th or early 15th century, records *charulia* which, according to Moti Chandra, could refer to cotton-*ikats* manufactured in Chirala town in Bapatla Taluk of Guntur District.<sup>56</sup> Chirala still makes them today.

More abundant and frequent references to the *ikat* technique appear in the 16th century. Besides the usual Gujarati and Hindi literature, the early Portuguese travellers now provide a new source of information on Indian fabrics and their export. The textile trade was mainly in the hands of Indian merchants from Gujarat, the Coromandel Coast and Bengal, its chief centres were Cambay on the west coast, Calicut on the Malabar coast, Pulicat on the Coromandel coast and Satgaon in Bengal, and its markets ranged from Arabia to Indonesia.

In 1512 Tome Pires mentions *patolas* as among Gujarati cloth being exported to Banda<sup>57</sup> and elsewhere he refers to *patolas* which were exported to Ternate and the Moluccas.<sup>58</sup> Duarte Barbosa (1500 to 1516–17) makes several references to the *patola*.<sup>59</sup> A *patola* design appears in a fresco in the Mattancheri Palace, Cochin, which was built by the Portuguese in 1555 for the Raja of Cochin.<sup>60</sup> *Patola* cloths are also depicted in the murals of the palace at Padmanabhpur in Travancore dating from the 17th and 18th centuries A.D.

## NOTES

1. *Encyclopaedia Britannica*, "Textiles", vol. 22, Chicago 1966; pp. 8E, 9.
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3. *Encyclopaedia Britannica*, op. cit.
4. *Encyclopaedia Britannica*, op. cit.
5. *Periplus of the Erythrean Sea*, trans. by W.H. Schoff, Philadelphia 1912.
6. Yazdani, G., *Ajanta*, 4 pts, London 1955; pt. 1, pl. XII–XIII.
7. Yazdani, G., op. cit., pts. XV1–XVII.

## SUMMARY HISTORY OF ASIAN TEXTILE MATERIALS

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9. Yazdani, G., op. cit., pl. XVIIa.
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12. Bussagli, M., op. cit., p. 49.
13. Bussagli, M., op. cit., p. 54. Andrews, F.H., op. cit., pl. IV; F. XII. 004.
14. Bussagli, M., op. cit., p. 76. Also Le Coq, A. von, *Die Buddhistische Spätantike in Mittelasien: III Die Wandmalereien*, Berlin 1924; pl. I.
15. *Encyclopaedia Britannica*, op. cit. Pfister, R., *Les toiles imprimées de Fostat et L'Hindoustan*, Paris 1938.
16. Pfister, R., op. cit., pp. 76, 80, 81.
17. Sylwan, M., *Investigation of Silk from Edzen-gol and Lop-nor*, being publication xxxii of *Reports from the Scientific Expedition to the North-Western Provinces of China under the leadership of Dr. Sven Hedin*, Stockholm 1949; p. 17.
18. Willetts, W., *Foundations of Chinese Art*, London 1965; p. 137.
19. Sylwan, V., "Silk from the Yin dynasty", in *Bulletin of the Museum of Far Eastern Antiquities*, no. 9 (Stockholm 1937).
20. Willetts, W., op. cit., p. 124.
21. Willetts, W., op. cit., p. 136.
22. Stein, Sir Aurel, op. cit., vol. 1, ch. VI, sec. iii, iv; vol. 3, pl. LXXXVI, LL.02. Fragment L.M.I. i.09 has a similar pattern.
23. Stein, Sir Aurel, op. cit., vol. 3, pl. LXXXVI. L.M.I. i.08. Fragment L.M.II. i.02 is similar.
24. Stein, Sir Aurel, op. cit., vol. 2, ch. XIX, sec. v, vi; vol. 3, pl. XXXVI, Ast vi. 2.04; pl. LXXVII, Ast. vi. 3.03(2), 07(2).
25. Stein, Sir Aurel, op. cit., vol. 3, pl. LXXXII, Ast. ix. 2.012.
26. Stein, Sir Aurel, op. cit., vol. 3, pl. LXXXVI, Ast. vi. 1.01 (yellow on red) (There is also a bandhana of this type from the Tang fort of Endere), pl. XI-V, Ast. vi. 0.1 (white on blue).
27. Hsia Nai, "New finds of ancient silk textiles" in *China Reconstructs*, January 1962; p. 42, fig. 9.
28. Stein, Sir Aurel, op. cit., vol. 1, sec. iii, v; vol. 2, pl. LXXXVI, K.K. 11.032.
29. Stein, Sir Aurel, op. cit., vol. 3, pl. LXXXVI, K.K. 11.016.
30. Stein, Sir Aurel, op. cit., vol. 3, pl. LXXXVII, K.K. 11:033 (white on blue).
31. Stein, Sir Aurel, op. cit., vol. 2, ch. XVIII, sec. i, ii; vol. 3. pl. LXXXVI, Kao. III. E. 01. a, b.
32. Sylwan, V., 1949, op. cit., pl. 3B.
33. *Treasures of the Shosoin*, ed. by Shosoin Office, Tokyo 1965; pl. 76. The composition is derived from the Sassanid-Persian motif of "animals under a tree."
34. *Treasures of the Shosoin*, op. cit., pl. 106.
35. *Treasures of the Shosoin*, op. cit., pl. 107.
36. *Treasures of the Shosoin*, op. cit., pl. 108.

37. *Treasures of the Shosoin*, op. cit., pl. 109.
38. Pfister, R., op. cit., pp. 47–50, pls. VIId, f; VIII, f.
39. Pfister, R., op. cit.
40. Willetts, W., op. cit. (1964); p. 9.
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44. Mehta, R.N., op. cit. (1961); p. 63, footnote 1.
45. Mehta, R.N., op. cit. (1961); p. 63, footnote 2.
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49. *Varna-Ratnakara* of Jyotirisvara Thakkura, ed. by S.K. Chatterji and Babua Misra, Calcutta 1942.
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51. Buhler, A., “Patola influences in Southeast Asia” in *Journal of Indian Textile History*, no. 4 (Ahmedabad, 1959); p. 4.
52. *Prachina Phagu-samgraha*, ed. by B.J. Sandesara, Baroda 1955; VI., p. 51 (see Moti Chandra, op. cit. (1961); p. 18).
53. *Prachina Phagu-samgraha*, op. cit., IV p. 39.
54. Chandra, M., op. cit. (1961); pp. 33, 34.
55. *Prachina Phagu-samgraha*, op. cit., 11.
56. *Vamakasamuhchaya*, ed. by B.J. Sandesara, Baroda 1956; vol. 1, (5) 180–181. Moti Chandra, op. cit., p. 26.
57. *The Suma Oriental of Tome Pires*, ed. and translated by Armando Cortesao, London 1944; vol. I, p. 207.
58. *The Suma Oriental*, op. cit., vol. I, p. 216.
59. *The Book of Duarte Barbosa*, by Mansel Longworth Dames, vol. I, London 1918: pp. 184, 198.
60. Pupul Jayakar (1955), op. cit., p. 55, pl. 1.